

Appl. No. 09/463,001
Amdt. dated January 3, 2005
Reply to Office action of July 2, 2004

REMARKS/ARGUMENTS

Status of Claims

Claims 10-12, 14-19, 22-27, 35-36, and 41-55 are presently pending in this application.

Claim rejections - 35 U.S.C. § 103

All the claims have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kirk et al., U.S. Patent 5,654,063 (Kirk) in view of Fritze et al., U.S. Patent 4,372,997 (Fritze).

The rejection

It is not clear to applicants what parts of the cited art the Examiner believes correspond to the elements of the claim. In paragraph 3 of the rejection, she refers to the Kirk reference as showing an intumescent material [14], a fiberglass scrim [18], a felted sheet [alternative 18], and a base member [20].

As applicants understand the Examiner's position, it is that the plastic base member 20 of Kirk extends into the openings of Kirk's fiberglass scrim 18 and forms a physical lock with the coated scrim. This is not the construction disclosed by Kirk. In the Kirk disclosure, the fiberglass scrim 18 is embedded in the active thermal protective (intumescent) material 14, and a hard, flat piece of plastic 20 is placed on one side of the thermal protective material. The plastic piece 20 is either adhered by the uncured intumescent material 20 itself, as the intumescent cures, or by a separate adhesive. There is no way for the base

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member 20 to extend into the openings in the scrim 18. The scrim has openings, but they are filled with the active thermal protective material, not the base member 20.

The Examiner has also indicated that "the plastic sheet material of Kirk et al. undergoes a curing process in order to rigidly secure it to the barrier layer (col 6, ln 8-11)." This is a misreading of that portion of the disclosure. The full paragraph from which the cited disclosure is taken says:

The base member 20 may be secured to the barrier layer 14 by an adhesive, such as the first PSA layer 16, but is preferably fixed by the natural bonding of the curing of the barrier layer 14. In particular, it is preferred that the base member 20 is applied to the barrier layer 14 while it is still in an uncured state, and allowed to remain in contact during the curing process to be rigidly secured to the barrier layer. (Col. 6, lines 5-11, emphasis added.)

Thus, it is clear that the "it" referred to in the phrase "while it is still in an uncured state" is the intumescent active thermal protective material 14, not the plastic base member 20.

As discussed in more detail with respect to the individual independent claims, applicants therefore strongly disagree that "Kirk et al. disclose the claimed invention except for the teaching that the fabric is embedded into a polyolefin organic resin."

Fritze is believed to be cited merely because it discloses an intumescent core covered by two fibrous webs, which may in turn be covered by polyolefin (polypropylene) sheets, and therefore is believed by the Examiner to suggest that

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some (unspecified) element of the Kirk construction could be made of polyolefin
"motivated by the desire to create an adhesive having a moisture barrier."

Although it is not clear to applicants which element of the Kirk construction might
be modified to make it a polyolefin, that is not believed to be critical to the
patentability of the claims as presented.

The Independent claims

The independent claims of the present application all call for constructions
and methods which applicants believe are neither shown nor suggested by the
cited art, taken alone or in combination.

Claim 10 of the present application recites, among other things, a layer
containing a thermoplastic, the layer having embedded therein a fabric, the fabric
being coated with an active thermal protective material, the active thermal
protective material leaving openings in the weave of the fabric, the thermoplastic
material extending into the openings and forming a physical lock with the coated
fabric. This is totally different from the Kirk construction, and nothing in Fritze
suggests modifying Kirk to produce this combination.

Claim 14 calls for a container formed essentially of a composite material
comprising at least one layer containing a thermoplastic, the layer having
embedded therein a fabric, the fabric being coated with an active thermal
protective material. Neither Kirk nor Fritze discloses or suggests embedding a
fabric coated with an active thermal protective material in a layer containing a
thermoplastic. Neither Kirk nor Fritze discloses or suggests using their materials

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as a container. Kirk is directed to a patch for a container, but there is no suggestion that it could be a container, nor does it appear that the Kirk material would be suitable as a container. The case cited by the examiner is not apposite. The present claim does contain a structural limitation ("a container") that is missing from the cited art. The Kirk patch is not a container. Nothing in Fritze suggests modifying Kirk as called for in the claim.

Claim 35 calls for a molded structure comprising an organic resin having embedded therein a fabric, the fabric being precoated with an active thermal protective material. This claim should be allowable for the same reasons discussed with respect to claim 14. Kirk does not disclose such a molded structure and neither Kirk nor Kirk plus Fritze suggests it.

Claim 49 calls for a composite structure comprising a substrate, the substrate being formed at least in part of a thermoplastic material, and a thermal protective structure adhered to the substrate, the thermal protective structure comprising a fabric coated with an active thermal protective material, the substrate adhering chemically and mechanically to the coated fabric. Nothing in Kirk or Fritze, alone or in combination, suggests this construction. Assuming the "substrate" of Kirk is the base 20, its only adhesion to the active thermal protective material 14 is chemical.

Claim 52 calls for a composite structure comprising a substrate, the substrate being formed at least in part of a polyolefin, and a mesh fabric treated with an active thermal protective material, the treated mesh fabric having from

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0.5 to 30 openings per square centimeter, the substrate adhering chemically and mechanically to the treated mesh fabric. This claim should be allowable for the same reasons set out above for claim 49.

Claims 25, 41, and 54 are method claims. They recite steps that are completely missing from, and unsuggested by, Kirk and Fritze.

Claim 25 calls for a method of forming a composite structure comprising a step of coating a fabric with an active thermal protective material, and thereafter a step of softening a resin component of a substrate and embedding the coated fabric in the softened resin. Neither Kirk nor Fritze suggests softening a substrate (like the base 20 of Kirk) and embedding a coated fabric in it as called for in this claim. As pointed out above, the portion of the Kirk reference referring to "the curing process" relates to curing of the intumescent active thermal protective material, not to the substrate 20.

Claim 41 calls for a method of forming a composite structure comprising a step of treating a fabric with an active thermal protective material, a step of placing the treated fabric in a mold, and a step of forming a substrate into a shape in the mold containing the treated fabric. Neither Kirk nor Fritze discloses anything remotely similar to this claim.

Claim 54 calls for a method of forming a composite structure comprising a step of coating a fabric with an active thermal protective material, the coating step leaving openings in the coated fabric, and thereafter a step of causing a resin component of the composite structure to pass through the openings and

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form a mechanical lock with the coated fabric. As discussed above with respect to claim 25, nothing in either Kirk or Fritze, alone or together, suggests this method.

The dependent claims all are believed to be directed to patentable combinations, both because of the patentability of their parent claims and because they add features which, in the claimed combination, would not have been obvious to one skilled in the art at the time the invention was made.

Summary and request for telephone interview

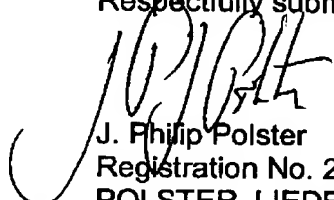
Unless the Examiner is reading the limitations of the claims on different elements of Kirk et al. than applicants have assumed, it is clear that for all the foregoing reasons the Examiner is wrong when she says that "Kirk et al. disclose the claimed invention except for the teaching that the fabric is embedded into a polyolefin organic resin."

Should the foregoing indicate that applicants are misunderstanding the rejections, or should the examiner still not be convinced that the claims are allowable, she is urgently requested to call applicants' undersigned attorney, J. Philip Polster, at 314-238-2426 to arrange a telephone interview before final rejection.

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It is believed that the claims as now written clearly define an invention which is neither anticipated nor made obvious by the prior art. It is therefore requested that the case be passed to issue.

Respectfully submitted,



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